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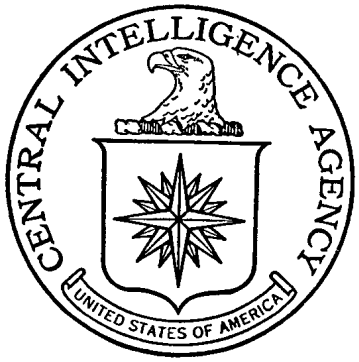
No 59

ECONOMIC INTELLIGENCE REPORT

PRODUCTION OF AGRICULTURAL MACHINERY IN THE USSR 1958



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FOREWORD

This report, an analysis of Soviet production of agricultural machinery in 1958, points up significant decreases in production of certain types of agricultural machinery. [redacted] 50X1

[redacted] 50X1

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PRODUCTION OF AGRICULTURAL MACHINERY IN THE USSR*
1958

Summary

Reported Soviet production of agricultural machinery in 1958, although confirming the expected increases in production of tractor-mounted machines, revealed reductions in production of combines. The most spectacular decrease occurred in production of corn harvesting combines, which declined in 1958 to only 19 percent of production in 1957.

According to the official Soviet statement, the reasons for the reductions in production of certain major types of agricultural machinery are the changeover to machines which are more productive and which consume less metal, the switch from tractor-drawn to tractor-mounted machines, and the conversion of the park of tractor-drawn grain combines to self-propelled combines. Of these three reasons, the first two seem valid, but the decision to convert tractor-drawn combines was made in October, too late to have had an appreciable effect on production in 1958. The official explanation failed to mention the disruptive switching of responsibilities for production from plant to plant, delays in the conversion of plants to production of new items, erratic deliveries of components to assembly plants, and delays in the shipment of materials from metallurgical plants.

In spite of seemingly serious shortcomings in 1958, the agricultural machinery industry of the USSR should be able to meet the expected demands placed on it under the Soviet Seven Year Plan (1959-65). It seems clear that 1958 was an unusual year, one of temporary and, in some respects, unavoidable reductions in production which probably will be recovered in 1959 or 1960.

Unless the expected recovery fails to occur, the agricultural machinery industry of the USSR should not impede the fulfillment of goals for increasing agricultural production and the productivity of agricultural labor under the Seven Year Plan.

* The estimates and conclusions in this report represent the best judgment of this Office as of 1 September 1959.

I. Introduction

A. Background

The directives of the abandoned Soviet Sixth Five Year Plan (1956-60) scheduled production of agricultural machinery worth 9.5 billion rubles in 1960,* an increase of 76 percent compared with 1955. [redacted] A total of 560,000 grain combines, 250,000 corn and ensilage harvesting combines, 180,000 windrowers,*** and 400,000 combine pickups for two-stage harvesting of grain were to be produced during the 5-year period. 2/ The agricultural machinery industry apparently operated under this official plan through 1957, in which year production already had increased by about 63 percent compared with 1955, or more than twice the planned annual rate. The brief announcements in late 1957 and early 1958, which spoke of plans for increasing production of grain combines and windrowers in 1958 compared with that in 1957 and which indicated that production of agricultural machinery in 1958 generally might exceed that in 1957, were followed by a decision in March 1958 to transfer the ownership of machinery from the machine tractor stations (MTS's) to the collective farms. The collective farms were advised that they should be more attentive than the MTS's had been in regard to the design and quality of the machinery which they purchased from the producing plants. This attitude was reflected immediately in the campaign to modernize the product mix of the agricultural machinery industry,**** a campaign which understandably might be expected to result in a decrease in the rates of production of a number of the types of machines involved.

50X1

B. Developments

With the possible exception of grain combines, it did not appear that the reductions in the unit production of any type of agricultural machine in the USSR in 1958 would be significant compared with 1957. In 1958 the expected increases occurred in production of tractor-mounted machinery (particularly plows, drills, cultivators, and mowers), but there were reductions in production of all the principal types of harvesting combines. The most

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* In 1955 prices. The equivalent for this figure is US $2.4 billion at the official rate of exchange of 4 rubles to US $1, which is not necessarily an accurate reflection of the dollar value.

[redacted]

50X1

*** For a definition of the term windrower, see II, G, p. 22, below.

**** For example, emphasis was placed on tractor-mounted rather than tractor-drawn machinery and on self-propelled rather than tractor-drawn grain combines.

spectacular decrease occurred in production of corn harvesting combines, which declined in 1958 to only 19 percent of production in 1957. [redacted] 50X1

According to official Soviet statements the agricultural machinery industry generally performed according to plan in 1958. The marked differences in production of particular machines compared with 1957 were said to have resulted from the changeover to machines that were more productive and consumed less metal, the switch from tractor-drawn to tractor-mounted machines, and the conversion of the park of tractor-drawn grain combines to self-propelled combines. The decision to convert tractor-drawn combines was not made until October and thus had no appreciable effect on production in 1958, but the effect of the first two factors mentioned is unquestionable, although these factors were not solely responsible for the reductions. The official explanation did not mention other factors that served to limit production in 1958. The most important of these factors were the switching of responsibilities for production from plant to plant, delays in the conversion of plants to production of new items, erratic deliveries of components to assembly plants, and delays in the shipment of materials from metallurgical plants. Nor was there mention of the fact that the industry apparently was operating under a revised plan for 1958.

C. Future Prospects

The announced directives of the Soviet Seven Year Plan (1959-65) did not include quantitative data for any type of agricultural machine except grain combines, of which 400,000 are to be produced. 4/ This number is only 71 percent of the number originally planned under the abandoned Sixth Five Year Plan (1956-60).

In December 1958, Premier Khrushchev made it clear that plans for production of agricultural machinery during the next 7 years were still in the formative stage and that much work on estimating the requirements of agriculture remained to be done. 5/ In the light of the overly ambitious goals of the Seven Year Plan for increasing production of agricultural products and the productivity of agricultural labor, however, it may be assumed that considerable quantities

[redacted] 50X1

of new machinery have been scheduled for delivery to agriculture from domestic production. The agricultural machinery industry should be able to meet the expected demands of the Seven Year Plan in spite of a seemingly poor performance in 1958 and should not impede the fulfillment of the goals for agricultural production. This conclusion is based on a continuation of the industry's standard practice of assigning orders for machinery to outside plants, although this practice, already curtailed with respect to production of combines in 1958, may be curtailed still further. This conclusion also is contingent on the fact that the disruptive factors not mentioned in the official Soviet statements concerning production in 1958 have been characteristic of the agricultural machinery industry for many years. This situation was aggravated in 1958, however, by rapid alterations in the product mix. Furthermore, the initial adjustment to producing machinery of better quality and improved design for the more demanding collective farms probably had been made by the end of 1958. In any case, it seems clear that 1958 was a year of temporary and, in some respects, unavoidable reductions in production, which probably will be recovered in 1959 or 1960.

II. Production

A. General

The total value of Soviet production of agricultural machinery in 1958 probably was lower than that in 1957, which was estimated at 8.8 billion rubles. This decline in the value of production resulted from the fact that the greatest decreases were in production of various types of expensive harvesting combines and in tractor-drawn machines, many of which cost more than their tractor-mounted counterparts. It is unlikely that the impressive increases in production of the latter, coupled with probable increases in production of several unreported items, were such as to offset the principal reductions.

In 1958, unlike previous years, the agricultural machinery industry in the USSR was faced with the task of producing machinery most of which was not of relatively well-established design. Almost every model of the various machines produced in 1958 which is discussed below was a modified version of one produced in 1957.* The problems

* The modernization of the product mix of the agricultural machinery industry is to be a standard feature of production of Soviet agricultural machinery during the Seven Year Plan if present goals are maintained. Whereas 208 different types of agricultural machinery were produced in 1957, 551 different items are to be produced in 1965, and more than 350 of these items will be of new design. 6/ Over a period of 7 years, however, the industry will have an opportunity to adjust to such a program.

inherent in the rapid modernization on a large scale of the product mix of an industry were compounded by changes in plans for production from time to time and the shifting of production of certain items from plant to plant with little warning to the plants involved. In addition, suppliers delayed shipments of machine components to assembly plants or shipped smaller quantities than had been scheduled. The effect of these factors on production of individual types of agricultural machines is revealed in the following sections, which direct attention not only to figures for total production but also to principal plants responsible for producing each type of machine.

Soviet production of the principal types of agricultural machines and the producing republics in 1957 and 1958 are shown in Table 1.*

B. Beet Harvesting Combines

In 1958, about 7,300 beet harvesting combines were produced in the USSR compared with about 8,600 in 1957, a decrease of 15 percent in production. The principal producer of beet harvesting combines in 1957 stopped production of this machine by the end of the year; but the remaining producer, the Dnepropetrovsk Agricultural Machine Building Plant imeni Voroshilov, achieved an increase of 79 percent in production in 1958 compared with 1957 and thus nearly was able to maintain the level of total production recorded in 1957.** Production in 1959 probably will exceed that of the record year of 1957.*** Because only about one-half of the sugar beets are harvested by combine, Soviet requirements for these machines will not be satisfied for some years to come.

The Dnepropetrovsk Agricultural Machine Building Plant imeni Voroshilov had been the sole producer of beet harvesting combines in the USSR once before, through 1953. In 1954, however, these combines also were produced in the RSFSR, where production increased gradually until 1957, when the RSFSR accounted for about 52 percent of total Soviet production. In 1958 the Dnepropetrovsk plant again was the sole producer. Although Soviet handbooks and reports on plan fulfillment reveal production of beet harvesting combines in the RSFSR during 1954-57, official sources never have identified the producing plant -- an unusual occurrence in Soviet reporting on production of the principal types of agricultural machines.****

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* Table 1 follows on p. 6.

** The Dnepropetrovsk plant considerably exceeded the plan for 1958, having been scheduled to increase production about 50 percent. 7/

*** In the first quarter of 1959, the Dnepropetrovsk plant increased production 25 percent compared with the same period in 1958. 8/

**** Text continued on p. 11, below.

Table 1

Production of Selected Types of Agricultural Machines in the USSR
1957-58

Thousand Units

Type of Machine	Producing Republic	1957	1958
Beet harvesting combine	RSFSR (Kuybyshev Sovnarkhoz a/*)	4.5 b/	0
	Ukrainian SSR (Dnepropetrovsk Sovnarkhoz)	4.1 c/	7.3 d/
Total		8.6 e/	7.3
Corn harvesting combine	RSFSR (Kemerovo Sovnarkhoz)	13.2 f/	0
	Ukrainian SSR (Khar'kov and Kherson Sovnarkhozes)	18.3 g/	6.1 h/
Total		31.4 i/	6.1
Ensilage harvesting combine	Belorussian SSR (Belorussian Sovnarkhoz)	38.2 j/	38.0 k/
	RSFSR (Kuybyshev, Leningrad, and Sverdlovsk Sovnarkhozes)	14.8 l/	0
	Ukrainian SSR (Kherson Sovnarkhoz)	1.2 m/	0
Total		54.2 n/	38.0

* Footnotes for Table 1 follow on p. 9.

Table 1

Production of Selected Types of Agricultural Machines in the USSR
1957-58
(Continued)

Thousand Units

Type of Machine	Producing Republic	1957	1958
Grain combine	RSFSR (Krasnoyarsk, Omsk, Rostov, and Tula Sovnarkhozes)	131.1 o/	65.0 k/
Total		131.1 p/	65.0
Tractor cultivator q/	RSFSR (Rostov and Ryazan' Sovnarkhozes) Uzbek SSR (Tashkent Sovnarkhoz)		
Tractor-drawn		105.7 r/	44.5
Tractor-mounted		102.0	132.5
Total		207.7 s/	177.0
Tractor drill t/ q/	RSFSR (Novosibirsk Sovnarkhoz) Ukrainian SSR (Kiev Sovnarkhoz) Uzbek SSR (Tashkent Sovnarkhoz)		
Tractor-drawn		259.1 r/	166.0
Tractor-mounted		19.0	52.0
Total		278.1 s/	218.0

Table 1

Production of Selected Types of Agricultural Machines in the USSR
1957-58
(Continued)

Thousand Units

Type of Machine	Producing Republic	1957	1958
Tractor plow g/	RSFSR (Altay and Sverdlovsk Sovnarkhozes) Ukrainian SSR (Odessa and Stalino Sovnarkhozes)		
Tractor-drawn		71.6 r/	53.0
Tractor-mounted		56.0	111.0
Total		127.6 s/	164.0
Windrower			
Complete units	RSFSR (Leningrad and Omsk Sovnarkhozes)	0	40.0 u/
	Ukrainian SSR (Zaporozh'ye Sovnarkhoz)	15.0 v/	40.0 w/
Units assembled at point of use from undercarriages and headers		97.0 j/	0
Total		112.0 x/	87.0 y/

Table 1

Production of Selected Types of Agricultural Machines in the USSR
1957-58
(Continued)

a. Sovet Narodnogo Khozyaystva (Council of National Economy).
b. 9/
c. 10/
d. 11/
e. 12/
f. 13/
g. 14/
h. Estimated on the basis of production of 6,000 units in the Ukrainian SSR in the first 6 months of 1958. 15/
i. 16/
j. Residual.
k. Estimated.
l. 17/
m. 18/
n. 19/
o. 20/
p. 21/
q. A complete breakdown, by producing area, is not available, but the listed sovnarkhozes accounted for most production.
r. The report on fulfillment of the plan for 1957 did not give a breakdown according to tractor-drawn and tractor-mounted machines. The breakdown for these machines was calculated on the basis of the breakdown given in the report on plan fulfillment for 1958, in which the percentage relationship with production in 1957 was indicated.

Table 1

Production of Selected Types of Agricultural Machines in the USSR
1957-58
(Continued)

s. 22/
t. Including all types of tractor-powered sowing and planting machines except potato planters and transplanting machines.
u. Planned. 23/
v. 24/
w. Planned. 25/
x. 26/
y. It has been assumed that the reported number of windrowers delivered to agriculture in 1958, all as complete units, approximated production.

50X1

C. Corn Harvesting Combines

The sharp downward trend in Soviet production of corn harvesting combines which began in the second half of 1957 continued through 1958. Production in 1958 amounted to only 6,100 combines, or 19 percent of production in the peak year 1957. Production in the second half of 1958 declined to less than 2 percent of production in the first half of the year.* Such a reduction must have been scheduled, because the plan for

* Production of corn harvesting combines during 6-month periods in 1957 and 1958 was as follows:

Period	Combines (Units)
1957	
January-June	19,000 29/
July-December	12,400 (residual)
1958	
January-June	6,000 30/
July-December	100 (residual)

the first half of 1958 was exceeded by 3.7 percent. 31/ There is no announced goal for production of corn harvesting combines under the Seven Year Plan against which to measure performance in 1958.

In view of the increasing acreages devoted to the growing of corn in the USSR and the relatively small park of about 50,000 corn harvesting combines at the end of 1958, however, the sharp decline in production of these combines in 1958 appears illogical. Two possible explanations, not mutually exclusive, may be offered. The first is that the currently produced models were so entirely unsatisfactory that production was curtailed pending the development of a suitable machine. Although models designed in 1958 are said to have more than twice the productivity of previous models, this fact does not appear to warrant the cessation of regular production of the less desirable machines. Nevertheless, under somewhat similar circumstances, production of cotton pickers was reduced from several thousand units annually to several hundred or less pending the development of a more satisfactory model. It may be expected, therefore, that production of the improved prototypes of corn harvesting combines now available will increase in the near future. Press and radio comment made in the course of discussions of the new models implies that such is to be the case. The second explanation is that the slump in production merely reflected temporary problems connected with establishing suitable producers for these combines. The discussion below concerning the situation at the Kherson Combine Plant imeni Petrovskiy and the Kremenchug Combine Plant suggests that this explanation also may have some merit. The possibility that leading Soviet planners have relegated production of corn harvesting combines to a low priority status scarcely merits consideration. Production of corn harvesting combines in the USSR in 1957-58 is shown in Table 2.*

The Kherson Combine Plant imeni Petrovskiy and the Kremenchug Combine Plant apparently were the sole producers of corn harvesting combines in the USSR in 1958. The Kherson plant is estimated to have produced 9,300 such combines in 1957 but was scheduled to produce only 3,000 in 1958, probably as a result of an expansion of its planned product mix to include 3,500 manure spreaders and 14,500 grain cleaning machines as well as preparations for the production of self-propelled chassis. 32/ The plant continued work on the development of prototypes of new corn harvesting combines, however, in the second half of 1958. The Kherson plant is a reluctant producer of agricultural machinery at best. The plant director openly voiced his conviction that the plant ought to drop such production in favor of "more stable products," such as diesel engines or small passenger automobiles. Leading officials of the Kherson Sovnarkhoz (Sovet Narodnogo Khozyaystva -- Council of

* Table 2 follows on p. 13.

Table 2

Production of Corn Harvesting Combines in the USSR
1957-58

Units

Area	1957	1958 Plan	1958 Actual
Ukrainian SSR	18,300 a/	5,800 b/	6,100
Kherson Sovnarkhoz c/	9,300	3,000	3,000 b/
Khar'kov Sovnarkhoz	9,000	3,000 b/	3,000 b/
Belorussian SSR	0	N.A.	N.A. d/
RSFSR	13,200 a/	N.A.	0
Yurga	13,200	N.A.	0
Total	31,400	N.A.	6,100

a. 33/
b. Estimated.
c. Sovet Narodnogo Khozyaystva (Council of National Economy).
d. Probably no combines were produced. Production, at most, amounted to fewer than 100 units.

National Economy) share the opinion that some such item ought to be produced in the plant, and even the Gosplan (Gosudarstvennyy Planovyy Komitet -- State Planning Committee) of the Ukrainian SSR was said to be striving for the establishment of a diesel engine plant in the Ukrainian SSR. 34/ This fact does not necessarily explain the lowering of the plan for production of corn harvesting combines in 1958 but probably explains the confusion in preparations for production of new models at the plant about which the press was complaining in September 1958. 35/ As yet, there is no indication that the plant has stopped or will stop producing agricultural machinery in favor of other items.* The Kommunar Combine Plant in Zaporozh'ye seems to have been given priority over the Kherson plant in plans for production of small passenger automobiles.**

The Kremenchug Combine Plant is estimated to have produced 9,000 corn harvesting combines in 1957 and presumably was scheduled to produce, as was the Kherson plant, about 3,000 such combines in 1958. Like the Kherson plant, the Kremenchug plant experienced a period of confusion in 1958 concerning the machines it was to produce. In February the plant was involved in setting up a special shop for production of wheels for agricultural machines. The plant director commented at the time that he could not figure out just what specialization was scheduled for his plant by officials of the Khar'kov Sovnarkhoz and the Gosplan of the Ukrainian SSR, inasmuch as they relieved it of production of tower cranes but added several new machines, including beet pilers and beet loaders.*** 36/ Whether or not the plant produced any corn harvesting combines in the second half of 1958 is not clear, but it probably did not. The development of prototypes seems to have been relegated solely to the Kherson plant.

Production of corn harvesting combines was complicated by developments in the Belorussian SSR and the RSFSR. The Belorussian SSR (no particular plant identified) was supposed to have initiated production of corn harvesting combines in 1958. 37/ Either this plan was not carried through, or production amounted to but a small proportion of the 100 combines or less which were produced in the USSR in the

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* The Kherson plant began the mass production of new three-row corn harvesting combines in the first quarter of 1959. Previous models were of the two-row type.

** The Kommunar plant is to produce automobiles as well as agricultural machinery. Details have not been announced.

*** This assignment probably had not passed beyond the planning stage. Tower cranes are not known to have been produced at the Kremenchug Combine Plant.

second half of the year. Although 13,200 corn harvesting combines, or 42 percent of total Soviet production, were produced in the RSFSR in 1957, none were produced in this area in 1958. Production in 1957 probably was carried out at the Yurga Combine Plant in Kemerovskaya Oblast in western Siberia. There are only two references to such a plant. The first, dated August 1956, reported that although the plant was still under construction, 50 corn harvesting combines had been produced in the shops already completed. 38/ In the second reference, dated March 1957, Premier Khrushchev, without naming the plant, said that a considerable number of corn harvesting combines were being produced in Kemerovskaya Oblast, whereas these combines should be produced closer to the points of use in the Dnepropetrovsk-Krasnodar-Rostov area. 39/ No subsequent reference has been noted concerning a combine plant in Yurga.

In spite of the shortage of corn harvesting combines, it is not logical for the USSR to have built a completely new plant to produce these machines at such a great distance from the principal corn growing areas in the Ukrainian SSR and the northern Caucasus and lower Volga area. At any rate, it is not likely that an important combine producing plant would be virtually ignored by the Soviet press and radio. It is possible, therefore, that the "construction" of the Yurga Combine Plant was, in fact, the reconstruction of Artillery Plant No. 75 to accommodate this plant to its new product. Plant No. 75 is believed to be the only industrial installation in Yurga. The shift away from conventional weapons in the USSR would make the conversion of an artillery plant to agricultural machinery a logical step. The availability of Plant No. 75 simply coincided with the desperate need for corn harvesting combines. It might be argued that Premier Khrushchev's comment concerning production of corn harvesting combines in such a relatively remote region would in itself be sufficient reason to halt production there and that, in any event, reduction of the goal for Soviet production of corn harvesting combines in 1958 made production at Yurga unnecessary. One might argue also that Khrushchev would have been aware from the beginning of the plans to produce thousands of combines in Yurga and that his subsequent criticism of the situation was merely a convenient cover for the reconversion of the plant to items of military significance. As to the second part of the argument, it is quite possible that the goal for production of corn harvesting combines in 1958 was reduced as a direct result of the knowledge that the plant in Yurga was to be converted to other products.

D. Ensilage Harvesting Combines

In 1958 the USSR produced 38,000 ensilage harvesting combines, a decrease of 30 percent compared with production in 1957. The decrease in 1958 was even more serious than this comparison reveals because production in the last 6 months of 1958 decreased 42 percent compared with the

first 6 months of the year and 52 percent compared with the last 6 months of 1957. This reduction occurred because plants in the Ukrainian SSR and the RSFSR ceased such production and the Gomel' Agricultural Machine Building Plant (Gomsel'mash) in Belorussia, which had been assigned additional responsibilities, was barely able to match its production in 1957. Inasmuch as the USSR had only 120,000 ensilage harvesting combines at the end of 1958, 40/ Soviet requirements are yet to be satisfied, and additional facilities probably will be allocated for production of these combines to prevent further reductions.*

Gomsel'mash, like a number of other agricultural machine building plants, was faced with changes in the plan during 1958. In January the plant produced 3,300 ensilage harvesting combines (at the rate of about 40,000 combines per year). 41/ In mid-March the plant began operating under a plan for increased production -- probably because other plants no longer were producing such combines -- and in a few days set a new record for production. From late March through July, production at the plant was proceeding at the rate of about 60,000 combines annually. 42/ The downward trend began in June. Production of LM-5 horse-drawn reapers was assigned to the plant, apparently primarily for export to underdeveloped countries such as India and Iran. 43/ In July the task of producing headers for ensilage harvesting combines, which heretofore had been supplied by the Syzran' Combine Plant, was transferred to Gomsel'mash. 44/ Meanwhile the plant was busily engaged in developing improved ensilage harvesting combines of the mounted and semimounted types as well as other types of agricultural machines. As a final step, it was announced in September that the plant was to prepare for specialization in production of equipment for the mechanization of stock farming.** 46/ Only the accelerated rate of production in the second quarter of the year prevented a more drastic decrease in production in 1958 compared with 1957.

To avoid a further decrease in 1959, production of ensilage harvesting combines may be resumed in the Ukrainian SSR*** and the RSFSR in the plants which had produced them in 1957. The second ranking

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* Ensilage harvesting combines are scheduled to be one of the principal products of the Pavlodar Combine Plant on its completion in 1961.

** This decision apparently did not preclude continued production of ensilage harvesting combines, machines which indirectly contribute to livestock raising, because Gomsel'mash produced its 100,000th unit in January 1959. 45/

*** The Nikolayev Shipyard imeni I.I. Nosenko exceeded its plan for production of ensilage harvesting combines in the first quarter of 1957 47/ and probably accounted for the total production of 1,200 such combines in the Ukrainian SSR in 1957.

producer in 1957, following Gomsel'mash, was the Izhora Steel and Machine Building Plant imeni A.A. Zhdanov in Kolpino near Leningrad. This plant produced about 10,000 combines of the 12,000 scheduled for production in 1957. 48/ The Urals Turbomotor Plant in Sverdlovsk, in cooperation with about 90 other enterprises, was scheduled to produce 6,000 ensilage harvesting combines in 1957 but actually produced only about 2,000. 49/ The Syzran' Combine Plant, the Lyubertsy Agricultural Machine Building Plant imeni Ukhtomskiy, and the Stalingrad Shipyard also produced limited quantities of ensilage harvesting combines at various times in the period 1954-57. Although these plants did not produce such combines in 1958,* they would be logical candidates for future assignments.

E. Grain Combines

Soviet production of grain combines in 1958 amounted to 65,000 units, or about one-half of that in 1957, the peak year for such production. The Seven Year Plan, however, calls for total production of only 400,000 grain combines, an average annual output of only 57,000 to 58,000.** If production continues at the rate achieved in 1958, fulfillment of the plan is assured. On the other hand, the figure released for production of combines under the Seven Year Plan may be preliminary and subject to revision. Still to be determined are the effects on the requirements for grain combines of the transfer of the ownership of machinery from the MTS's to the collective farms in March 1958 and the decision in October 1958 to convert the park of 330,000 tractor-drawn grain combines to the self-propelled type.***

It is obvious that the Soviet leaders never expected production of combines in 1958 to reach the level of 135,000 originally planned 51/ once the decision was made early in the year to convert all combine plants (except the plant in Tula****) to production of the new SK-3 self-propelled model. A revised goal was not announced.

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* The Izhora Plant imeni A.A. Zhdanov in Kolpino was engaged in production of a special order for 20,000 windrowers in the second half of 1958.

** The abandoned Sixth Five Year Plan called for average annual production of 112,000 grain combines.

*** Plans call for conversion of 200,000 tractor-drawn combines in 1959. 50/ The decision in favor of such conversion was made in order to achieve a more expeditious use of combines in the two-stage system of harvesting grain, which is being emphasized and for which self-propelled grain combines are better suited. In addition, Soviet announcements stress the fact that an equal number of tractors will become available for other uses and that thousands of combine operators can be diverted to other jobs.

**** In 1958 the Tula Combine Plant continued to produce a small tractor-drawn, power take-off grain combine for northern humid regions.

The conversion to production of self-propelled combines almost exclusively in 1958 had an immediate effect on total production of grain combines. Production in the first quarter of 1958 amounted to 41 percent of the annual total, or 26,900 combines, of which 20,400 were tractor drawn. 52/ In the second quarter, however, only about 8,000 combines, again mostly tractor drawn, were produced. 53/ Only 2,000 SK-3 self-propelled combines were produced in the first 6 months of 1958, compared with a plan of at least 3,500 units. 54/ In the second half of the year a total of about 29,000 combines were produced, all of which were of the new SK-3 model except those produced at Tula.*

By December 1958 the chairman of the Rostov Sovnarkhoz was so confident of the ultimate success of the program for conversion that he suggested that the Rostov Sovnarkhoz (which includes the combine plants in Rostov-on-Don and Taganrog) could produce the entire 400,000 combines called for under the Seven Year Plan, thus permitting the plants producing grain combines in Tula, Krasnoyarsk, and elsewhere to produce "other items."** 55/ The planned partial conversion of the Kommunar Combine Plant in Zaporozh'ye to production of small passenger automobiles in 1960 56/ and the assignment of production of 25,000 windrowers to the Tula Combine Plant in 1959 57/ may indicate that the suggestion has received official approval. As yet there is no indication that other plants producing grain combines have converted.

The combine plants in Taganrog and Krasnoyarsk had been making the S-4 or S-4M self-propelled combines for some years and were affected only moderately by the conversion to a new model, but the principal producer of tractor-drawn combines, Rostsel'mash in Rostov-on-Don, experienced inexplicable delays. The last RSM-8 tractor-drawn grain combine left the main

* The Tula Combine Plant produced 5,000 tractor-drawn, power take-off grain combines in 1957.

** This statement would imply that all 400,000 combines scheduled for production during the Seven Year Plan are to be self-propelled (completely contrary to the Sixth Five Year Plan, under which almost all 560,000 combines scheduled for production were to be tractor drawn) and raises a question concerning production of the small, tractor-drawn grain combines at the Tula Combine Plant. No comment was made concerning the way in which production of grain combines was affected by the production of 25,000 windrowers at the Tula plant in 1959. According to an article appearing in a Soviet economic journal in February 1959, Rostov Agricultural Machine Building Plant (Rostsel'mash) is working on the creation of mounted grain combines for self-propelled chassis, a measure which will permit a better utilization of combine engines. The article adds that the complete conversion of combine-building plants to grain combines designed for mounting on self-propelled chassis is contemplated under the Seven Year Plan.

conveyer at Rostsel'mash on 15 March 1958, but the first 107 SK-3 self-propelled combines were not released until June. Another 753 units were produced in July 58/ and 1,660 in September, 59/ an increase of 10 to 20 per day compared with August. 60/ These figures contrast sharply with production of 4,330 tractor-drawn combines at the plant in the first 30 days of January 1958. 61/ By November the plant was producing at the rate of 2,700 to 2,800 combines per month, 62/ only a little below the rate of about 3,000 per month which the plant apparently plans to maintain during 1959. 63/ The early delay in production never was explained beyond the comment that there were "some defects" in the work connected with the conversion. 64/ It is not the first time, however, that Rostsel'mash has failed to convert smoothly to production of a new product. The director and chief engineer of the plant were fired for delaying for 6 months the changeover from production of Stalinets-6 tractor-drawn grain combines to that of RSM-8 combines in 1956.

In January 1958 the Novosibirsk Planing Machine Plant was given the task of producing, in cooperation with other enterprises in Novosibirsk, 8,000 SK-3 combines between May and the end of the year. 65/ By the end of July, however, only 4 had been produced, at a great expense in time and effort, whereas the plan had called for production of 150. The principal difficulties were the failure of cooperating enterprises to supply the components according to plan and the failure of the metallurgical enterprises to make shipments of the required metal on time. 66/ Apparently just when the plant was beginning to solve some of its more pressing problems, a little more than 6 months after the order was received, the Gosplan of the RSFSR issued a notice to cease production, having decided that there was "no sense" in producing grain combines in Novosibirsk. 67/

The progress in production of SK-3 combines at the plants in Zaporozh'ye, Krasnoyarsk, and Omsk was not covered fully in the press, nor were any specific plans reported for each plant. The Krasnoyarsk Combine Plant undoubtedly produced SK-3 combines in 1958 on a regular basis, and the Omsk Combine Assembly Plant probably did so, but it appears that the Kommunar Combine Plant in Zaporozh'ye may have done no more than assist the plants in Taganrog and Rostov-on-Don.

Construction of the huge Pavlodar Combine Plant, which covers about 400 acres, continued throughout 1958, with grain combines still scheduled as one of the principal products. Considerable investments of time and money were made in 1958, particularly at Rostsel'mash, to convert to production of the SK-3 self-propelled combine, and present plans would appear to require the expenditure of similar amounts within a few years for conversion to yet another type of machine. The plan for 1957 called for capacity to produce 60,000 combines annually at

the Pavlodar plant, which is scheduled to begin operations in 1961.* 68/ If this plant were to achieve such a high level of production it is obvious that production at other combine plants would become superfluous under present plans for production through 1965. The Pavlodar plant, however, probably will not produce grain combines or will produce them at a much lower rate than originally planned.

F. Tractor Cultivators, Drills, and Plows

Soviet spokesmen appear justified in claiming that production of tractor-drawn cultivators, drills, and plows decreased in 1958 as a result of the switch to production of tractor-mounted models on a large scale.** A switch of the magnitude shown in Table 3*** could reasonably be expected to disrupt total production temporarily. The lower rate of production of tractor-mounted drills reflects the generally greater complexity of these machines compared with cultivators and plows and the related Soviet inclination to concentrate first on those machines which are the easiest to mount on tractors. In the case of tractor plows, the reported increase of 99 percent in production of tractor-mounted models was more than sufficient to offset the decline of 26 percent in production of tractor-drawn models.

Under the Seven Year Plan, annual production of tractor-mounted machines, except possibly for drills, probably at least will approximate total production of all tractor-powered types of such machines in 1958.

The plan for 1958 provided for an increase of almost 100 percent in production of tractor-mounted plows and tractor-mounted drills compared with 1957, 69/ a total of nearly 150,000 machines. Production of these machines in 1958 amounted to 163,000 units, thus exceeding the plan by about 9 percent and increasing production by about 117 percent compared with 1957. Tractor-mounted cultivators accounted for about 75 percent of the total production of tractor cultivators in 1958, or close to the 77 percent scheduled for 1960 under the abandoned Sixth Five Year Plan. 70/

* The plant, construction of which was begun in 1954, originally was scheduled to start producing grain combines in 1957 and to begin full operation in 1959-60.

** The USSR, although long recognizing the savings in metal and the greater efficiency in operation to be derived from the use of tractor-mounted rather than tractor-drawn machines, was slow to effect a change in established patterns of production. Serious efforts to develop tractor-mounted machines for mass production were not made until 1953. Such machines first were produced on a large scale in 1955, in which year 37 percent of the tractor plows and 59 percent of the tractor cultivators were mounted.

*** Table 3 follows on p. 21.

Table 3

Production of Tractor-Powered Cultivators, Drills, and Plows in the USSR
1957-58

Thousand Units

Type of Machine	1957	1958
Tractor cultivator		
Tractor-drawn	105.7	44.5
Tractor-mounted	102.0	132.5
Total	207.7	177.0
Tractor drill		
Tractor-drawn	259.1	166.0
Tractor-mounted	19.0	52.0
Total	278.1	218.0
Tractor plow		
Tractor-drawn	71.6	53.0
Tractor-mounted	56.0	111.0
Total	127.6	164.0

The Sixth Five Year Plan also provided that tractor-mounted plows* should account for 45 percent of all the tractor plows produced. This goal was nearly achieved in 1957, when 44 percent of the plows produced were tractor mounted, and was exceeded considerably in 1958, when 68 percent of the plows produced were of this type, thus indicating the extent to which the program has been accelerated.** Tractor-mounted cultivators, drills, and plows will account for an even larger percentage of production in the future, although, as in the US, there always will be a need for some tractor-drawn models.

* Including deep tillers.
** In the first quarter of 1959, 75 percent of the tractor plows produced were mounted. 71/

In 1958, operations at Soviet plants producing tractor cultivators, drills, and plows progressed in a generally satisfactory manner, although official criticism often was directed toward inadequate performance in production of selected new models. Plans for production of these machines were more stable than was the case for the other machinery discussed in this report, and there were no significant shifts in responsibilities for production from one producing plant to another. Most of the tractor cultivators were produced at the Krasnyy Aksay Agricultural Machine Building Plant in Rostov-on-Don, the Ryazan' Agricultural Machine Building Plant (Ryazel'mash), and the Chirchik Agricultural Machine Building Plant (Chirchiksel'mash). The Krasnaya Zvezda (Red Star) Agricultural Machine Building Plant in Kirovograd, the Siberian Agricultural Machine Building Plant (Sibsel'mash) in Novosibirsk, and the Uzbek Agricultural Machine Building Plant (Uzbeksel'mash) in Tashkent accounted for most of the production of tractor drills. Production of tractor plows was concentrated in the Altay Agricultural Machine Building Plant (Altaysel'mash) in Rubtsovsk, the Nizhniy-Tagil Machine Building Plant, the Odessa Agricultural Machine Building Plant imeni October Revolution, and the Stalino Agricultural Machine Building Plant.

G. Windrowers*

The decrease in Soviet production of windrowers from 112,000 in 1957 to about 87,000 in 1958,** a decrease of 22 percent, represented a more favorable performance than had been planned. Goals for 1958 included production of 80,000 windrowers. 72/ Unless there was an unannounced change later, the plan, therefore, was exceeded by 9 percent.

The decline in production of windrowers in 1958 resulted primarily from a change in the type of machine produced. It was common Soviet practice in 1956 and 1957 to report as production of windrowers those units

* Windrowers became prominent in Soviet agriculture in 1956 concomitantly with the decision to introduce the two-stage system of grain harvesting. A windrower is a machine that is used to reap the grain about a week before it is ripe, laying it in a row on the ground. Then, when the grain is ripe, grain combines, with their reels and mowing bars replaced by pickup units, move over the rows and pick up the grain. Once the grain has been picked up, it is handled by combines in precisely the same way as is grain which has been harvested by combines in the regular manner.

** It has been assumed that the reported number of windrowers delivered to agriculture in 1958 approximated production. Soviet trade in windrowers is insignificant.

which were assembled at the point of use from separately produced undercarriages and headers. In 1957, for example, only 15,000 of the reported production of 112,000 windrowers were shipped out from plants as completed units. The practice of producing separate undercarriages and headers for later assembly had received official criticism in 1957 and apparently was discontinued in 1958. Windrowers produced as complete units, however, cannot be produced as rapidly as those assembled from two major sections.*

The types of windrowers produced in 1958 were more efficient and of lighter weight than the cumbersome affairs assembled from undercarriages and headers. Production in 1958 was to consist of tractor-mounted rather than tractor-drawn windrowers. It was expected that the switch to tractor-mounted models would result in the saving of more than 50,000 metric tons of rolled stock in 1958. 73/ Contrary to the original plan, most of the windrowers produced in 1958 were, in fact, a new tractor-drawn model of carriageless design. This machine weighs only about one-half as much as the previous tractor-drawn model but about 50 percent more than the tractor-mounted model, and so the saving in metal would have been correspondingly less than had been planned.

Production of windrowers did not proceed as smoothly as the quantitative data might imply, nor was the quality up to expectations. [redacted] 50X1 50X1

[redacted] In order to avoid a formal underfulfillment of the plan, presumably in terms of the total value of all production, Novosibirsk Sovnarkhoz simply lowered the scheduled goals in the light of changed conditions.** 78/ The situation at Sibsel'mash probably explains 50X1

* Although there undoubtedly was some interchangeability of components between the windrowers completed at the plant and those assembled in the field, the machines generally were not the same. A windrower completed at the plant was less makeshift in construction, a much more finished machine.

** Sibsel'mash has been an important producer of tractor drills, tractor harrows, and tractor plow-harrows (lushchil'niki) since World War II. Production of these items apparently was not affected by the curtailment of plans for production in 1958. During World War II, Sibsel'mash produced munitions and probably engaged in production of munitions during the Korean War. Production of tractor drills, harrows, and plow-harrows during 1951-55 was as follows: 1951, 91,500; 1952, 53,300; 1953, 40,000; 1954, 51,700; and 1955, 66,500. 76/ The decline in production and the subsequent recovery during the Korean [footnote continued on p. 24]

the sudden assignment at midyear of production of 20,000 windrowers to the Izhora Steel and Machine Building Plant imeni A.A. Zhdanov in Kolpino. 79/ The latter plant, having had experience in production of ensilage harvesting combines in 1957, fulfilled the task ahead of schedule with no apparent difficulty. 80/

The Omsk Combine Assembly Plant was scheduled to produce 5,000 windrowers in 1958 in cooperation with 8 other Omsk enterprises and another 15,000 windrowers in cooperation with more than 30 enterprises in the Moscow area. 81/ Although the plant was running behind schedule because of insufficient deliveries of components by supplying enterprises, particularly those in the Moscow area, 82/ 10,000 windrowers had been completed by the first week in September. 83/ Inasmuch as about 8,800 of these machines were produced in the 4-month period beginning in May, the plant already was producing in September at a rate which virtually would assure fulfillment of the goal if maintained to the end of the year. More serious than the erratic deliveries of components, however, was the fact that the Omsk plant -- in an obvious attempt to meet the goal for production at the expense of quality -- was shipping out windrowers with missing parts, which cooperating enterprises failed to ship. 84/ The possibility that these uncompleted units remained in that condition and yet were included in Soviet statistics would have to be considered in evaluating the usefulness to agriculture of the windrowers produced in 1958.

The remaining 40,000 windrowers scheduled under the plan for 1958 were to have been produced at the Pervomayskiy (First of May) Agricultural Machine Building Plant in Osipenko. The plant was 9,000 windrowers short of its goal for production in 1957 85/ and failed to fulfill the plan for the first half of 1958, 86/ but there is no indication of serious underfulfillment of the goal for 1958. The Kremenchug Combine Plant apparently did not initiate the production of windrowers in 1958 as had been planned. Plans for production of windrowers in 1959 have not been released, but the assignment of an order for 25,000 machines to the Tula Combine Plant suggests that serious attention is being given to windrowers and that there is a likelihood of an increase in production in 1959.

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conflict appear to be more than coincidence. In July 1955 the Soviet press reported that the plant was subordinated to the former Ministry of General Machine Building. 77/ This statement suggests a rather unusual situation, inasmuch as at that time all other major agricultural machine building plants were controlled by the former Ministry of Automobile, Tractor, and Agricultural Machine Building. The plant probably had not completely discontinued production for the military in 1955 and probably has not yet done so, [redacted] 50X1 50X1

APPENDIX A

METHODOLOGY

All data on national Soviet production of agricultural machinery in 1958 and production in various republics of the USSR used in this report were obtained from official Soviet handbooks, newspapers, and periodicals. In most instances, production at individual plants was obtained from the same sources. The methodology used to estimate production at individual plants, when such data were not reported, is given in the text.

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